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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,788	09/26/2001	Setsuo Kobayashi	1113.40340X00	8825

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EXAMINER

RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 10/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/889,788

Applicant(s)

KOBAYASHI ET AL.

Examiner

Timothy L Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohe et al (Ohe) USPAT 6,300,994 B1.

As to claim 1, Ohe discloses in Figures 1-6, a liquid crystal display device comprising a pair of substrates and a liquid crystal layer held between the pair of substrates (Summary of the Invention, col. 1, line 53 through col. 4, line 7), at least one of the pair of substrates being provided with plural electrodes for applying an electric field to the liquid crystal layer (col. 1, lines 64 and 65), a protecting film for protecting at least one of the plural electrodes and oriented films formed to cover the protecting film or the electrodes (col. 1, lines 66 and 67), characterized in that the film thickness of the protecting film is in the range of 0.4 μm to 2 μm (col. 3, lines 42-44) and the thickness of the sum of the layers is 0.5 μm to 3 μm (col. 3, lines 30-32; note: gm is typo) (overlaps Applicant's from 0.1 μm to 0.7 μm and Applicant's 0.5 μm), and

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no visible residual image (col. 1, lines 54-58 and col. 9, lines 42-54) (Applicant's an AC residual image of the oriented films is less than 8 %).

The invention of Ohe deals primarily with the improved insulating and alignment layers to reduce residual image, and the values of Ohe overlap the claimed ranges, therefore it would have been obvious to those having ordinary skill in the art of liquid crystals to comprise a liquid crystal display as claimed.

As to claim 2, Ohe discloses the use of a specific resistance of the liquid crystal layer of 1×10^9 to $8 \times 10^{15} \Omega \cdot \text{cm}$ (overlaps Applicant's $10^{10} \Omega \cdot \text{cm}$ or more).

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohe, as applied to claims above, in view of Mishina et al (Mishina) USPAT 5,350,539.

As to claim 3, Ohe discloses the liquid crystal display device according to claim 1 or 2.

Ohe does not explicitly disclose a device characterized in that at least one of the oriented films is an organic polymer containing at least one of a polymer and an oligomer in which a weight substance with a long-chain alkyl group applied to an amine component or an acid sentence is at least 5 % and at most 30 % of the total molar amount.

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Mishina teaches the use of at least 10 mol % (overlaps Applicant's 5 % and at most 30 %) of an alkyl group (col. 2, line 44 through col. 3, line 23) to provide low temperature heat treatment and stable alignment properties (col. 1, lines 5-9). Mishina also teaches that the alkyl group may be a long-chain alkyl group in order to raise the tilt angle (col. 5, lines 23-25).

Mishina is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add 5 ~ 30 % long-chain alkyl group to raise the tilt angle while providing low temperature heat treatment and stable alignment properties.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Ohe with the add 5 ~ 30 % long-chain alkyl group of Mishina to raise the tilt angle while providing low temperature heat treatment and stable alignment properties.

3. Claims 4, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohe in view of Mishina as applied to claim 3 above, and further in view of Yu et al (Yu) USPAT 6,066,696.

As to claims 4, 5, and 6, Ohe in view of Mishina disclose the liquid crystal display device according to claim 3.

Ohe in view of Mishina do not explicitly disclose a device, characterized in that a weight average molecular weight of the polymer and the oligomer is at least 2,000, and at most 30,000.

Yu teaches the use of 1 % to 20 % (by weight, col. 5, lines 14-21) of a polyimide having an alkyl group at both ends (col. 2, lines 32-60) with a molecular weight of 5×10^3 to 5×10^5 (col. 5, lines 21-28) (overlaps Applicant's 2,000 and at most 30,000) for improved optical alignment and thermal stability (col. 5, lines 19-21).

Yu is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a polyimide having an alkyl group with a molecular weight of 2,000 and at most 30,000 for improved optical alignment and thermal stability.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Ohe in view of Mishina with a polyimide having an alkyl group with a molecular weight of 2,000 and at most 30,000 of Yu for improved optical alignment and thermal stability.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 308-4842. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



Timothy L Rude
Examiner
Art Unit 2871

TLR
September 30, 2002



TOANTON
PRIMARY EXAMINER